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RESEARCH ARTICLE

REVISED Depressive symptoms and their sociodemographic determinants among people living with HIV/AIDS in Bangladesh: a cross-sectional study [version 3; peer review: 2 approved]

Rokshana Rabeya [iD][1], Nur Alam [iD][1], Zannatul Ferdous Sonia[1],
Dipa Rani Mohajon[1], Yasin Arafat[1], Md. Kamrul Hasan [iD][2],
Mohammad Delwer Hossain Hawlader[2]

[1]Department of Public Health Nutrition, Primeasia University, Dhaka, 1213, Bangladesh
[2]Department of Public Health, North South University, Dhaka, 1229, Bangladesh

Abstract

Background: HIV is a chronic disease with a profound social impact due to its strong ties with sexual and societal stigmatized behavior, such as illegal drug use and sexual promiscuity. Depression is one of the major disabling factors in chronic illnesses. Depression and anxiety disorders are more common among people living with HIV than the non-infected individuals. This study aimed to determine the prevalence of depression and its associated factors among people living with HIV/AIDS in Bangladesh.

Methods: This cross-sectional study, which took place in Dhaka, Bangladesh, from July to December 2020, included 338 HIV-positive people. The method used was a simple random sampling technique. The Beck Depression Inventory assessed depression in HIV-positive people (BDI).

Results: More than 62 percent of the 338 people surveyed had severe depression, 30.5 percent had moderate depression, 5.6 percent had mild depression, and 1.8 percent had no depression. Age, being a male, being married, and having a low monthly income were all significant predictors of depression.

Conclusions: This study found that depressive symptoms are highly prevalent among HIV-positive patients in Bangladesh. The authors recommend that health care providers address depressive disorders for people with HIV/ AIDS comprehensively.

Open Peer Review

Approval Status ✓✓

	1	2
version 3 (revision) 17 Apr 2023		✓ view
version 2 (revision) 08 Sep 2022	✓ view	? view
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1. **Epari Venkatarao** [iD], Siksha 'O' Anusandhan, Bhubaneswar, India

2. **Collins Adu** [iD], James Cook University, Townsville, Australia

   University of New South Wales, Sydney, Australia

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Health gateway.

Corresponding author: Mohammad Delwer Hossain Hawlader (mohammad.hawlader@northsouth.edu)

Author roles: Rabeya R: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Alam N**: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Software, Writing – Original Draft Preparation, Writing – Review & Editing; **Sonia ZF**: Data Curation, Investigation, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; **Mohajon DR**: Investigation, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; **Arafat Y**: Data Curation, Investigation, Writing – Original Draft Preparation; **Hasan MK**: Data Curation, Investigation, Validation, Visualization, Writing – Review & Editing; **Hawlader MDH**: Conceptualization, Investigation, Project Administration, Supervision, Validation, Visualization, Writing – Review & Editing

> **REVISED** **Amendments from Version 2**
>
> The authors revised the background of the abstract, adding more to the objective of the study. In the second paragraph of the introduction, the definition of depression is added as suggested by the reviewer's suggestion. The last statement of the second paragraph is revised. In the third paragraph, a recent reference is added regarding the PLWHA context, as suggested by the reviewer. In the first part of the methods, the name of the study design is added. Before the conclusion, a new section on "Policy, practice and further research" has been added. Finally, the conclusion is revised as suggested by the reviewer.
>
> **Any further responses from the reviewers can be found at the end of the article**

Introduction

Infection with the human immunodeficiency virus (HIV) causes acquired immune deficiency syndrome (AIDS) (Krämer, Kretzschmar, & Krickeberg, 2010). Around 38 million people worldwide are infected with HIV (Global Aids Update 2020, 2020). HIV is transmitted primarily through unprotected sex, contaminated blood transfusions, hypodermic needles, and mother-to-child transmission during pregnancy, delivery, or breastfeeding (Rom & Markowitz, 2007). AIDS was first recognized as a new disease in 1981, when an increasing number of young homosexual men died of unusual opportunistic infections and rare cancers (Sharp & Hahn, 2011). According to the World Health Organization (WHO), 36.7 million people worldwide live with HIV and AIDS, with 1.1 million dying in 2015 (World Health Organization, 2018). In Bangladesh, the first case of HIV was discovered in 1989 (Goldberg, 2010).

Depression (also called major depressive disorder or clinical depression) is a common but serious mood disorder. It causes severe symptoms that affect how you feel, think, and handle daily activities, such as sleeping, eating, or working (https://www.nimh.nih.gov/health/topics/depression). It also has an impact on social behavior and physical well-being. It affects people of all ages, including children and teenagers (Deshmukh, Borkar, & Deshmukh, 2017). Depression is common among HIV-positive people (Deshmukh, Borkar, & Deshmukh, 2017). Depressed mood, loss of interest or pleasure, decreased energy, guilt or low self-worth, disturbed sleep or appetite, and poor concentration is all symptoms (World Health Organization, 2017). It obstructs daily life and lowers life quality. People living with HIV (PLHIV) had more mental health problems than people not infected with the virus, with those who had fewer problems were less likely to be poor and more likely to be employed, educated, and on antiretroviral therapy (ART). Psychiatric morbidity is linked with several factors: being female, being in poor health, receiving poor-quality health care, and lacking material and emotional support from family and friends (Brandt, 2009).

In PLWHA, depression is linked to increased morbidity and mortality, as well as poor adherence to antiretroviral therapy (ART), quality of life (QoL), and health-related quality of life (AQoL) (Abas, Ali, Nakimuli-Mpungu, & Chibanda, 2014). The financial cost of HIV treatment for the victim/patient is enormous, frequently leading to poverty for the sufferer and his or her family. PLWHA means People living with HIV/AIDS (Dahlui *et al.*, 2015). Married people are more likely to have stigma on PLWHA and are more likely to blame PLWHA for bringing the disease to the community. Also about half of the population discriminates against PLWHA (Dahlui *et al.*, 2015). Even though depression among HIV patients is widespread in various countries, there is little evidence from Bangladesh. As a result, we conducted this research to fill a gap that may provide evidence for future effective HIV/AIDS prevention and treatment.

Methods

From July to December 2020, an institution-based cross-sectional study among PLWHA in Bangladesh was conducted. Considering 67.3% population prevalence (Rai & Verma, 2015), 5% error, and 95% confidence interval, our sample size was 338. We conducted this study in all drop-in centers (DIC) of CARE Bangladesh located in Chankharpul, Swamibag, Dholpur, Hazaribagh, Noya Bajar, and Tongi of Dhaka city. We recruited adult males, females, and transgender people who were advised for routine checkups in those centers. HIV-positive patients who were not willing to participate in this study were excluded.

For this study, a purposive sampling technique was applied for selecting the HIV working organization, and after that, a simple random sampling technique was applied to recruit the study participants. A written, structured questionnaire based on the objectives and variables was used for data collection (see extended data). Only close-ended questionnaires were used to assemble data, and the interview was completed in the local language. Questionnaires were first prepared in English and then translated into the local language Bangla and again back-translated into English to see the accuracy of Bangla translation.

Table 1. Demographic & socioeconomic features and Association between sociodemographic & socioeconomic factors with depression among people living with HIV.

	n (%)	Depression level				Chi-square	p-value
		None	Mild	Moderate	Severe		
Age							
18 to 30 years	121 (35.8%)	4 (3.3%)	4 (3.3%)	27 (22.3%)	86 (71.1%)	20.98	**0.013**
31 to 40 years	121 (35.8%)	0 (0.0%)	9 (7.4%)	47 (38.8%)	65 (53.7%)		
41 to 50 years	69 (20.4%)	0 (0.0%)	4 (5.8%)	23 (33.3%)	42 (60.9%)		
Above 50 years	27 (8.0%)	2 (7.4%)	2 (7.4%)	6 (22.2%)	17 (63.0%)		
Sex							
Male	297 (87.9%)	5 (1.7%)	16 (5.4%)	98 (33.0%)	178 (59.9%)	9.82	0.132
Female	20 (5.9%)	1 (5.0%)	2 (10.0%)	3 (15.0%)	14 (70.0%)		
Transgender	21 (6.2%)	0 (0.0%)	1 (4.8%)	2 (9.5%)	18 (85.7%)		
Level of education							
Illiterate	116 (34.3%)	3 (2.6%)	12 (10.3%)	35 (30.2%)	66 (56.9%)	10.35	0.111
Up to Secondary	173 (51.2%)	3 (1.7%)	7 (4.0%)	52 (30.1%)	111 (64.2%)		
Higher Secondary and above	49 (14.5%)	0 (0.0%)	0 (0.0%)	16 (32.7%)	33 (67.3%)		
Occupation							
Unemployed	50 (14.8%)	1 (2.0%)	2 (4.0%)	13 (26.0%)	34 (68.0%)	3.28	0.772
Employed	269 (79.6%)	5 (1.9%)	17 (6.3%)	85 (31.6%)	162 (60.2%)		
Student	19 (5.6%)	0 (0.0%)	0 (0.0%)	5 (26.3%)	14 (73.7%)		
Religion							
Muslim	316 (93.5%)	6 (1.9%)	19 (6.0%)	101 (32.0%)	190 (60.1%)	8.40	**0.038**
Hindu	22 (6.5%)	0 (0.0%)	0 (0.0%)	2 (9.1%)	20 (90.9%)		
Marital status							
Married	195 (57.7%)	5 (2.6%)	16 (8.2%)	70 (35.9%)	104 (53.3%)	20.66	**0.002**
Unmarried	118 (34.9%)	0 (0.0%)	3 (2.5%)	25 (21.2%)	90 (76.3%)		
Divorce or separated	25 (7.4%)	1 (4.0%)	0 (0.0%)	8 (32.0%)	16 (64.0%)		

Table 1. *Continued*

	n (%)	Depression level				Chi-square	p-value
		None	Mild	Moderate	Severe		
Types of family							
Nuclear	258 (76.3%)	5 (1.9%)	12 (4.7%)	78 (30.2%)	163 (63.2%)	2.20	0.532
Joint	80 (23.7%)	1 (1.2%)	7 (8.8%)	25 (31.2%)	47 (58.8%)		
Family size							
Single	83 (24.6%)	0 (0.0%)	2 (2.4%)	18 (21.7%)	63 (75.9%)	13.21	**0.040**
2 to 5 members	232 (68.6%)	6 (2.6%)	14 (6.0%)	79 (34.1%)	133 (57.3%)		
6 and above	23 (6.8%)	0 (0.0%)	3 (13.0%)	6 (26.1%)	14 (60.9%)		
Monthly income							
<10,000 BDT	241 (71.3%)	5 (83.3%)	12 (63.2%)	66 (64.1%)	158 (75.2%)	28.89	**<0.001**
10,001 – 20,000 BDT	94 (27.8%)	0 (0.0%)	6 (31.6%)	37 (35.9%)	51 (24.3%)		
>20,001 BDT	3 (0.9%)	1 (16.7%)	1 (5.3%)	0 (0.0%)	1 (0.5%)		

The Statistical Package for Social Science (SPPS) version 25 was used to compile and analyze the data for this study. The questionnaire and data are available online (Rabeya *et al.*, 2021, 2022). A chi-square test or Fisher exact determined the relationship between categorical variables. The presence and strength of association between independent variables and the severe depression category were determined using crude and adjusted odds ratios with a 95 percent confidence interval (CI). Variables with a "p-value" of less than 0.05 were considered significant in the bivariate logistic model.

Ethics approval and consent to participate
The Institutional Review Board (IRB) of Primeasia University, Dhaka, Bangladesh, approved this study. The reference number is PAU/IEAC/22/103. Prior to data collection, we received approval from CARE Bangladesh addition to this approval. CARE Bangladesh is a humanitarian organization to improve the socioeconomic status of women and the marginalized population in Bangladesh.

Additionally, each participant was aware of the aim of the study, as well as they signed in the written informed consent form prior to providing information.

Results
Table 1 shows that a total of 338 male, female, and transgender HIV-positive respondents aged between 18 to more than 50 years were enrolled in the study. Demographic characteristics of the subject (n=338) in this cross-sectional study show that most participants (35.8%) belonged to age groups of 18 to 30 years, 31 to 40 years 35.8%, 41 to 50 20.4%, and 50 and above were 8.0%. The mean age of the participants was 35.6 ($\pm$9.9) years. The study revealed that 297 (87.95%) were male, whereas 20 (5.95%) were female, and 21 (6.2%) were transgender. Among 338 participants, 116 (34.3%) were illiterate, 173 (51.2%) were educated up to secondary school level (10th grade), and 49 (14.5%) were Higher Secondary (12th grade) and above. Occupation revealed the following participants: 14.8% were unemployed/home-makers/others, 79.6% were employed, and 5.6% were students. Regarding religion, 93.5% were Muslims, and 6.5% were Hindu. Among the respondents, 57.7% were married, 34.4% were unmarried, and 7.4% were divorced or separated. The majority (76.3%) were from nuclear families, and 23.7% were from families with multiple members (spouses/parents). Most of the respondents (68.6%) came from a family consisting of two to five family members, followed by 24.6% of single respondents, and 6.8% were from more than six family members. The subjects' socioeconomic status showed that 71.3% of respondents' earnings were below 10000 TK per month based on their monthly income. It also represents the results of the association between different categories of depression and various sociodemographic variables, where the significant association of depression was detected with age (p=0.013), religion (p=0.038), marital status (p<0.002), number of family members (p=0.040), and monthly income (p<0.001). Nevertheless, the variables like education, gender, occupation, and family type did not exhibit any association with depression among HIV-positive respondents.

The Beck Depression Inventory (BDI) scale was used to determine depression, which was divided into four categories: no depression (0–9), mild depression (10–16), moderate depression (17–29), and severe depression (30–63) (Unnikrishnan, Jagannath, Ramapuram, Achappa, & Madi, 2012). We discovered that 62.1 percent had severe depression, 30.5 percent had moderate depression, 5.6 percent had mild depression, and only 1.8 percent had no depression (Figure 1).
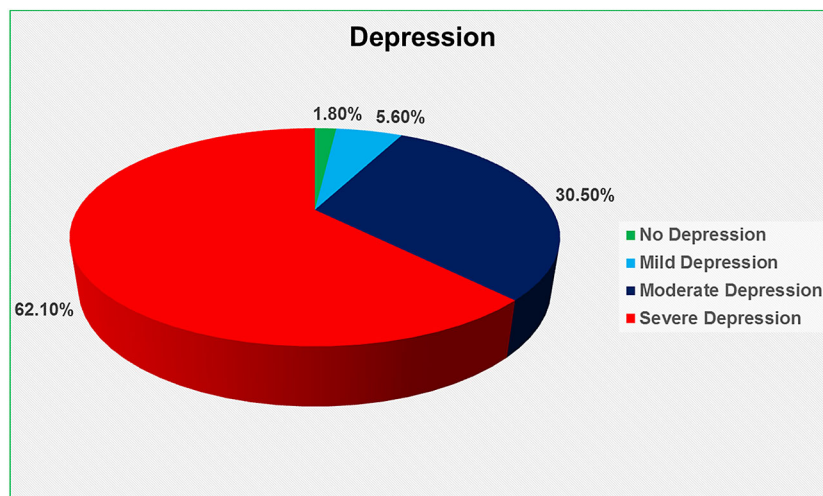

Figure 1. Depression level of the HIV-positive respondents.

An adjusted multivariable model was created by forwarding stepwise logistic regression using the significant factors with the bivariate model. In our study, in the case of religion, Hindus were 4.9 times more prone to develop severe depression than their counterpart, Muslims (AOR=4.93; 95%CI: 1.09-22.24). Unmarried individuals had 1.9 times more chances to develop severe depression than married individuals (AOR=1.95; 95%CI: 1.00-3.80). Transgender people

Table 2. Unadjusted and adjusted analysis of factors associated with severe depression among the participants.

Variables	Crude			Adjusted[1]		
	OR	95% CI	*p*-value	OR	95% CI	*p*-value
Age						
18-30 years	Ref.			Ref.		
31-40 years	0.47	0.27 – 0.80	0.006*	0.71	0.37 – 1.36	0.306
41-50 years	0.63	0.34 – 1.18	0.150	0.98	0.47 – 2.03	0.963
Above 50 years	0.69	0.28 – 1.65	0.409	1.26	0.48 – 3.29	0.627
Sex						
Male	Ref.			Ref.		
Female	1.56	0.58 – 4.17	0.376	1.64	0.57 – 4.73	0.354
Transgender	4.01	1.15 – 13.91	0.029*	1.59	0.38 – 6.60	0.518
Level of education						
Illiterate	Ref.			Ref.		
Up to Secondary	1.35	0.83 – 2.19	0.215	1.16	0.69 – 1.96	0.553
Higher Secondary and above	1.56	0.77 – 3.15	0.212	1.14	0.66 – 3.09	0.355
Occupation						
Unemployed	Ref.			Ref.		
Employed	0.71	0.37 – 1.35	0.301	0.95	0.46 – 1.95	0.892
Student	1.31	0.40 – 4.29	0.647	1.17	0.31 – 4.30	0.810
Religion						
Muslim	Ref.			Ref.		
Hindu	6.63	1.52 – 28.86	0.012*	4.93	1.09 – 22.24	0.038*
Marital status						
Married	Ref.			Ref.		
Unmarried	2.81	1.69 – 4.67	< 0.001*	1.95	1.00 – 3.80	0.049*
Divorced or separated	0.65	0.65 – 3.69	0.316	1.16	0.41 – 3.28	0.776
Types of family						
Nuclear	Ref.			Ref.		
Joint	0.83	0.49 – 1.38	0.476	0.77	0.42 – 1.43	0.420
Family size						
Single	Ref.			Ref.		
2 to 5 members	0.42	0.24 – 0.75	0.003*	0.69	0.33 – 1.45	0.331
6 and above	0.49	0.18 – 1.31	0.157	0.75	0.25 – 2.28	0.620
Monthly income						
<10,000	Ref.			Ref.		
10,001-20,000	0.62	0.38 – 1.01	0.056	0.65	0.38 – 1.14	0.120
>20,001	0.26	0.02 – 2.93	0.278	0.17	0.01 – 2.48	0.198

[1]Adjusted with age, sex, religion, marital status, and family members.
*Significant *p*-value at *p*<0.05.

were more prone to develop severe depression than male and female respondents, but the association was not statistically significant in multivariable analysis. Similarly, students were more likely to develop severe depression than other occupations but did not find significant associations. Other variables such as education, family types, number of family members, and income were not significantly associated with depression in HIV patients (Table 2).

Discussion

The purpose of this study was to assess depression in PLWHA. Depression is associated with a wide ranges of chronic diseases (Lotfaliany et al., 2018; Louvardi et al., 2020). However, in this study included 338 HIV-positive respondents, ranging from 18 to more than 50 years old, with a mean age of 35.6 years. The average age of participants in a similar study conducted in Sub-Saharan Africa was 38.9 years, slightly higher than ours (van Coppenhagen & Duvenage, 2019). Chikezie et al. in Nigeria found that the average age of participants was 35.57 years, similar to our study (Chikezie, Otakpor, Kuteyi, & James, 2013).

The Beck Depression Inventory was used in this study, and it was used to categorize depression into four categories: no depression, mild depression, moderate depression, and severe depression. We discovered that 62.1 percent of people had severe depression, 30.5 percent had moderate depression, 5.6 percent had mild depression, and 1.8 percent had no depression. A similar study conducted in Brazil found that the prevalence of no depression was 46.3 percent, mild depression was 17.7 percent, moderate depression was 22.7 percent. Severe depression was 13.3 percent, significantly lower than our study in moderate and severe depression levels (Dal-Bó et al., 2015). Another study in China found that 71.9 percent of people suffer from mild to severe depression (Su et al., 2013). In the north, west, and south of Iran, depression was found in 45 percent, 30 percent, and 56 percent of HIV patients, respectively. Furthermore, depression was prevalent in 25 percent of addicts and 58 percent of non-addicts, respectively (Doosti-Irani, Moameri, Ahmadi-Gharaei, & Holakouie-Naieni, 2017).

Some differences in depression prevalence could be due to those countries' socio-cultural and economic contexts, such as income, political and social stability, strong familial support, and healthy social environments. This cross-sectional study found that males were suffering more from depression than females. The possible reasons could be that men are more likely to smoke, drink alcohol, eat unhealthily, and are often less aware of medical conditions and confront unemployment, economic hardship, etc. (Alkazemi, 2019). A study conducted in Kalafong Provincial Tertiary Hospital slightly differs from ours, where they found that females were more depressive than males (55.70% vs. 50.66%) (van Coppenhagen & Duvenage, 2019). In addition, several studies also reported that women had more depression, anxiety, and stress, such as Gordillo et al. (Gordillo et al., 2009) Wisniewski et al. (Wisniewski et al., 2005) Rapaport et al. (Rapaport, Clary, Fayyad, & Endicott, 2005) and Othman et al. (Othman, Fadzil, Zakaria, Jaapar, & Husain, 2015).

This study revealed that participants whose monthly household income was less were at higher risk for depression; similar findings were reported by a study conducted at three hospitals in Ethiopia, which found that income less than 200 birr's was associated with depression (Gupta et al., 2010). This could be because people in low-income countries are pressured to rely on academics due to poverty-related factors, leading to increased domestic work and a lack of access to health education and awareness (Al Jarad et al., 2018). Deshmukh et al. conducted a study that backs up this claim (Deshmukh et al., 2017).

Dorsisa et al. (2020) found that married people are more depressed than unmarried people in Ethiopia (Dorsisa, Ahimed, Anand, & Bekela, 2020), but we found that unmarried people are more likely to develop depression in our current study. Loneliness and a lack of mental support from partners to share the pain could be the cause, resulting in various negative thoughts. Our research found a link between age and depressive symptoms in people aged 18 to 30, and Abebe et al. (2019) found a similar link. Understanding and conceptualizing that their HIV status increases with age and transitioning to adulthood may be fraught with developmental challenges (Abebe, Shumet, Nassir, Agidew, & Abebaw, 2019). In some studies, specific characteristics, such as age, employment status, and income level, have been linked to depression in PLWHA (Nanni, Caruso, Mitchell, Meggiolaro, & Grassi, 2014; Rabkin, 2008; Eller et al., 2014; Do et al., 2014).

Policy, practice and further research

Health promotion campaigns should incorporate a shift from fear to care, as this is important to treat PLWHA having depressive symptoms. As stigma and discrimination continue to be crucial factor that impedes prevention programs, policymakers need to strengthen the HIV/AIDS intervention and health education program in local communities in Bangladesh. Educating the population regarding the importance of mental health can play a significant role in responding to this menace. Education, knowledge, and awareness are believed to be the vanguard for this condition. Behavioral change strategies can be fruitful too. Future studies should also focus more on HIV/AIDS education or intervention

programs that aim to increase the knowledge and awareness of the population in the communities, especially among rural communities.

Conclusions

The current study found a high prevalence of depressive symptoms among HIV-positive patients in Bangladesh. In order to improve patient care and clinical outcomes, routine screening is critical in addressing this common psychiatric condition among HIV-positive populations. The Ministry of Health should develop guidelines to screen and treat depression among HIV patients. Because depression is so common among HIV-positive people, policymakers should include mental health programs in routine HIV care so that depression can be detected and treated early.

Data availability statement

Underlying data

Zenodo: HIV/AIDS-Depressive symptoms dataset; https://doi.org/10.5281/zenodo.5808314 (Rabeya, 2021)

This project contains the following underlying data:

- Data.xls (raw data from questionnaires)

Extended data

Zenodo: HIV/AIDS-Depression questionnaire. https://doi.org/10.5281/zenodo.5904418 (Rabeya, 2022)

This project contains the following extended data:

- **Data file 1.** Copy of the survey administered to participants (in English).

Data are available under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0).

Author contributions

All of the authors greatly aided the manuscript's development.

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Open Peer Review

Current Peer Review Status: ✓ ✓

Version 3

Reviewer Report 15 May 2023

https://doi.org/10.5256/f1000research.146499.r169892

✓ **Collins Adu** iD

[1] College of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville, Qld, Australia
[2] Center for Social Research in Health, University of New South Wales, Sydney, New South Wales, Australia

Thank you very much. All my comments have been addressed to my satisfaction

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Infectious diseases (HIV/AIDS); policy and prevention of violence against women; sexual violence; sexual and reproductive health

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 2

Reviewer Report 16 January 2023

https://doi.org/10.5256/f1000research.138010.r154144

? **Collins Adu** iD

[1] College of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville, Qld,

Australia

[2] Center for Social Research in Health, University of New South Wales, Sydney, New South Wales, Australia

Abstract

○ Under the background section. Please revise that section to inform the need for the study.

○ Results: Can being a man be changed to male please? Male and Female are the accepted definition of terms for gender.

Introduction

○ First paragraph: Sharp and Hahn (2011) recognized what?

○ Second paragraph: Please provide a reference for the definition of depression. Provide a reference to the statement depression is common among HIV-positive people. Please, revise the last statement in second paragraph. It is too long to read with no clarification.

○ Third paragraph: what is the full meaning of PLWHA? It was just introduced. Can you provide a recent literature on the last but one statement in paragraph 3. 1996 is too old.

Methods

○ What research design was employed? Mixed-method or quantitative or qualitative.

○ Please remove the last paragraph under the methods section and add it up to the ethics approval and consent to participate. You have to revise that section to avoid duplication of ideas.

Discussion

○ Did you assess depression among people living with HIV? Was that the objective of the study?

○ I suggest that the authors provide another section to write on the implication for policy, practice, and further research.

○ The conclusion reads well but with the introduction of the implication for policy, practice, and further research section, it must be revised very well and be concise.

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Partly

If applicable, is the statistical analysis and its interpretation appropriate?

Yes

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Infectious diseases (HIV/AIDS); policy and prevention of violence against women; sexual violence; sexual and reproductive health

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 03 Apr 2023
Md. Kamrul Hasan

Comment-1:
Under the background section. Please revise that section to inform the need for the study.
Authors' response: Thank you. The authors revised accordingly.

Comment-2:
Results:
Q. Can being a man be changed to male please? Male and Female are the accepted definition of terms for gender.
Authors' response: We changed man to male in the revised version. Thank you.

Comment-3:
Introduction
First paragraph:
Q. Sharp and Hahn (2011) recognized what?
Authors' response: Thank you. In the revised manuscript authors addressed and fixed this.

Comment-4:
Second paragraph:
Q. Please provide a reference for the definition of depression.
Similar to (World Health Organization, 2018) definition
Authors' response: Reference was provided. Thank you.

Q. Provide a reference to the statement depression is common among HIV-positive people.
(Deshmukh, Borkar, & Deshmukh, 2017). https://10.4103/2249-4863.222016
Authors' response: Added.

Q. Please, revise the last statement in second paragraph. It is too long to read with no clarification.
Psychiatric morbidity is more common in female with poor health who receive poor quality health care and have lacking emotional support from their family and friends.
Authors' response: Revised.

Comment-5:
Third paragraph:
Q. what is the full meaning of PLWHA? It was just introduced. Can you provide a recent literature on the last but one statement in paragraph 3. 1996 is too old.
https://doi.org/10.1371/journal.pone.0143749
Authors' response: Addressed and fixed.

Comment-6:
Methods
Q. What research design was employed? Mixed-method or quantitative or qualitative. (observational study)
Authors' response: It is a cross-sectional study. Thank you.

Q. Please remove the last paragraph under the methods section and add it up to the ethics approval and consent to participate. You have to revise that section to avoid duplication of ideas.
Authors' response: Addressed and fixed.

Comment-7:
Discussion
Q. Did you assess depression among people living with HIV? Was that the objective of the study?
Author's response: Yes, the authors assessed depression among people living with HIV.

Q. I suggest the authors provide another section to write on the implication for policy, practice, and further research.
Author's response: Thank you.

The conclusion reads well but with the introduction of the implication for policy, practice, and further research section, it must be revised very well and be concise.
Author's response: Revised.

Competing Interests: No competing interests were disclosed.

Reviewer Report 12 September 2022

https://doi.org/10.5256/f1000research.138010.r149883

✔ **Epari Venkatarao** (iD)

Department of Community Medicine, Institute of Medical & Sum Hospital, Siksha 'O' Anusandhan, Bhubaneswar, Odisha, India

Thanks.
The authors have complied with the comments and have updated the changes in the article satisfactorily.
I have no further comments.
The article may be indexed.
Thanks again.

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Yes

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Depression, Reproductive health, Clinical trials, NCDs, Physical activity promotion, Oncology. etc.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 1

Reviewer Report 09 August 2022

https://doi.org/10.5256/f1000research.119952.r145206

? **Epari Venkatarao** (iD)

Department of Community Medicine, Institute of Medical & Sum Hospital, Siksha 'O' Anusandhan, Bhubaneswar, Odisha, India

This is an important study documenting the burden of depressive symptoms among PLHIV, which can contribute to policy formulation, both locally and globally. The study has been conducted carefully and technically the study design is appropriate to respond to the study objectives. A review of the literature has been done optimally.

However, I have just two comments

Table 1 was not needed, it can be merged with table 2 as a composite table and that would reduce the article space in the journal.

Secondly, under the discussion section one or two articles relating to depression among people with other chronic diseases, might add value to the article.

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Yes

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Depression, Reproductive health, Clinical trials, NCDs, Physical activity promotion, Oncology. etc.

I confirm that I have read this submission and believe that I have an appropriate level of

expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 31 Aug 2022

Md. Kamrul Hasan

Comment-1: Table 1 was not needed, it can be merged with table 2 as a composite table and that would reduce the article space in the journal.
Author's Response: Thanks for the suggestion. As suggested the authors merged table 1 and table 2 and add a composite table in the revised (new version) manuscript.

Comment-2: Secondly, under the discussion section one or two articles relating to depression among people with other chronic diseases, might add value to the article.
Author's Response: Thanks. The authors added information relating to depression among people with other chronic diseases with appropriate citations in the revised (new version) manuscript.

Competing Interests: The authors declared no competing interests in this study.

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